# Research–teaching yin–yang?
# An empirical study of accounting and finance academics in Australia and New Zealand

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**Abstract**

This paper uses a survey to explore relations between teaching and research of accounting and finance academics in Australia and New Zealand (ANZ). Previous research in other countries on the relationship between research and teaching is inconclusive. Two recent studies consider research-teaching relations in the discipline of accounting in South Africa and the United Kingdom (UK). This investigation extends work undertaken in the UK to ANZ. Exploratory factor analysis (EFA) identifies four factors that describe the positive effects of relations between research and teaching and five factors that limit productive relations between the two. This dichotomy we term the teaching–research Gestalt. Contrary to expectations, research-active faculty see little merit in integrating research with teaching while more junior and teaching-oriented faculty show support for a teaching–research Gestalt. In addition, the empirical model underlying the teaching-research Gestalt is remarkably similar in its structure across both ANZ and the UK, suggesting the findings are generalizable to the accounting and finance discipline. Extensions to other jurisdictions and allied disciplines are encouraged.

**Introduction**

The relationship between teaching and research in higher education has been the subject of recent and vigorous debate. While research and teaching are believed to have a symbiotic relationship (Visser-Wijnveen *et al.*, 2010), the subject is widely debated (Simons and Elen, 2007). Some literature identifies the mutuality of research and teaching, arguing that active engagement in one will benefit the other (Colbeck, 1998; Zamorski, 2002; Zimbardi and Myatt, 2012), while others suggest research and teaching have few synergies and vie for academic time and institutional resources (Coate *et al.*, 2001; Hattie and Marsh, 1996; Stappenbelt, 2013). This debate, often labelled 'the teaching–research nexus' (Neumann, 1992, 1993, 1994; Ramsden and Moses, 1992; uz Zaman, 2004), implying a favourable relationship between the two, is contested and highly contextual where the ability of one to influence the other is dependent on the discipline, the national context, and the level of study. In this paper we examine the important question of the relationship between teaching and research for accounting and finance in Australia and New Zealand.

That the relations between teaching and research are topical is due to the contemporary unprecedented interest in measuring academic performance in many countries (for example, Australia's Excellence in Research Assessment, New Zealand's Performance Based Research Fund, and the UK's Research Excellence Framework). Similarly, national surveys of student satisfaction increasingly influence university league tables, which affect an institution's ability to compete for students and resources. With academic labour increasingly commoditised, and subject to managerialism and the forces of so-called New Public Management, the shibboleth that quality teaching and student learning go hand in hand with quality research is under increasing strain (Robertson, 2007).

The advent of the assessment of research exercises in 2003 in New Zealand and 2010 in Australia has seen more focus on research and the drivers that are likely to improve the institution's ranking. While arguably this creates difficulties for all disciplines, it has had particular impact on accounting and finance, where student numbers have significantly increased resulting in higher teaching loads for many staff. For example, in Australia in 2001 there were slightly less than 30,000 accounting students, which increased to 43,710 in 2015. While data on accounting staff numbers is more difficult to obtain, student staff ratios for the broad field of Management and Commerce in Australia show the student staff ratio for full time equivalent staff increased from 42:1 in 2004 to 106:1 in 2014 (Department of Education, 2016). While this increase can be partly explained by increased use of casual staff, it does mean that producing research papers for staff in accounting and finance is a significant challenge.

This is supported by the fact that the 2015 Excellence in Research exercise in Australia saw only 20 of 41 universities submit in the accounting, auditing and accountability field of research and the results were lacklustre, with only eight institutions ranked above or well above world standard, three at world standard, and eight below world standard, while one was not rated. The results for Banking, Finance and Investment were similar, where 20 universities submitted with eight ranked above and well above world standard, six at world standard and seven below or well below world standard.

This raises the question: how do teaching and research interact in the contemporary discipline of accounting and finance in Australia and New Zealand (ANZ)? It is an important question for the discipline of accounting in Australia in particular, in terms of its status in higher education given comments like the following attributed to Belinda Probert a former Deputy Vice Chancellor at La Trobe University in Australia and author of a discussion paper for the Office for Learning and Teaching on a surge in teaching focused positions. Professor Probert was reported to say that "the fabled teaching-research nexus — which demands that all academic teaching is informed by

research activity — was costly and ignored the fact that not all disciplines, such as accounting and undergraduate chemistry, needed to be taught by research-active staff." (Hare 2015, p7). Add to this increased use of casual staff (some of whom may be research students); the move to appoint more teaching only or teaching focused positions in ANZ; the impact of private providers who deliver accounting education at a cheaper cost as academics are only employed to teach and not complete research, it is an opportune time to address this question. Most prior investigations into the teaching–research nexus in accounting and finance have been undertaken in the United Kingdom (UK) (Duff and Marriott, 2012, 2016a, b) and South Africa (Lubbe, 2015). The ANZ context is markedly different to the UK. The most recent comparable figures available for both countries in 2010 report there were 24,195 undergraduate accounting students in the UK while there were about 55,000 in Australia alone (Higher Educations Statistics Agency 2016: Department of Education and Training 2016). Class sizes are significantly larger – often by factors of ten or more resulting in higher student: staff ratios. The proportion of international students is also much larger with about one third in the UK and two thirds in Australia (Higher Educations Statistics Agency 2016: Department of Education and Training 2016). Therefore to study the teaching-research nexus in this new context is a significant contribution. The aim of this paper then is to evaluate how relations between teaching and research operate in the discipline of accounting and finance in ANZ. This investigation into the accounting and finance discipline in ANZ should make a useful contribution to the literature by providing evidence that will inform the on-going debate about the interaction between teaching and research (Parker *et al.*, 2011).

The paper's contribution is twofold: first, the empirical investigation of the views of accounting and finance academics in ANZ to the teaching–research relationship; and second the testing of a model developed to assess the relationship in accounting academics in the UK by administering the research instrument of Duff and Marriott (2012) to accounting and finance academics in higher education in ANZ. We establish the validity of scale scores when applied to a sample of ANZ

accounting and finance academics and then use the constituent scales to undertake an intra-individual analysis of survey responses. Unlike Duff and Marriott (2016a, b) we also assess qualitative responses to five open-ended questions and consider in greater depth the demographics of the sample rather than just the measurement qualities (Duff and Marriott, 2016a) or pattern of responses to the inventory (Duff and Marriott, 2016b).

The paper proceeds as follows. The next section reviews the literature and introduces the model relating to the relationship between faculty research and student learning, and provides some contextual information about higher education in ANZ. The research design is then described. The results of the survey and findings are reported before the final section concludes.

**Literature review**

While mediaeval universities were places of learning focused on preparing future generations of highly educated employees (King, 2004), the modern university is based on the von Humboldt model where cutting edge research is perceived as inseparable from, and even identical to, teaching and learning (Annala and Mäkinen, 2011). This symbiotic relationship has been widely discussed and debated in the education literature. For example, Elton (1986, p. 303) explored the links between teaching, research, and scholarship, finding that there is little research to support the existence of a link between teaching and research but concludes: "the way forward for universities is not to be divided into teaching institutions and research institutions, but to make sure that scholarship flourishes in them all and supports both teaching and research". Similarly, in a meta-analysis considering the association between teaching quality and research quality, Hattie and Marsh (1996, p. 529) found no link between teaching quality (student/peer evaluations) and research productivity (journal count): "We must conclude that the common belief that research and teaching are entwined is an enduring myth. At best, research and teaching are very loosely coupled".

However, Brown (2005) argues that the relationship between teaching and research is not in a bipolar extreme, but rather placed along a continuum. At one end, research-focused academics disseminate their findings only to their research community, while at the other end what is taught is isolated from the academic debate of researchers. Along the middle of the continuum postgraduate students are supervised by research-active academics.

Extending the discussion, rather than asking whether a positive relationship between teaching and research exists, Nehme (2012, p. 271), asked "how a positive nexus between teaching and research can be implemented and enhanced". Similarly, Jones (2013, p. 388) sought to move beyond identification of the extent of the nexus to understand how it can be mobilised. Jones developed a Scholarship-Teaching-Action-Research (STAR) framework, in an attempt to "better integrate research in discipline, scholarship for and from teaching and teaching practice such that students develop the broad range of knowledge and skills required for them to make effective contributions within, and across, disciplines".

As the debate is on-going and the context of higher education changing over time, from discipline to discipline, and in different national settings, it is important to continue to investigate teaching–research relations to reflect the evolving landscape. Locke (2012) noted that teaching is increasingly fragmented into a multitude of activities relating to the facilitation of learning and the spectrum of research has also broadened. The acquisition of content knowledge and associated technical skills, which can become quickly outdated, is less valued in a modern society where graduates are likely to change careers many times; rather, the most highly valued skills that universities can impart are inquisitiveness, a logical approach and adaptability – similar skills to those required of an effective researcher. Wilson *et al.* (2012) argued that the inclusion of research-focused elements in

undergraduate programmes not only provides a means to provide graduates with important generic skills but also offers an opportunity to integrate research and teaching activities.

Given the changing context outlined above, we consider the teaching–research literature in the accounting discipline specifically before turning to the ANZ context. The past four decades have seen a number of investigations into linkages between accounting research and practice (Hines, 1989; Lee, 1989; Zeff, 1989a, b; Albrecht and Sack, 2000; Gray and Collinson, 2002; Inanga and Schneider, 2005). However, relatively little research has examined the relationship between accounting and finance research and teaching (Rebele *et al.*, 1998; Duff and Marriott 2012, 2016a, b). Some tensions between accounting education and research are alluded to by Solomons and Berridge (1974), Kitchen and Parker (1980), and Wright and Chalmers (2010).

Bennis and O'Toole (2005, p. 10) address the problem more comprehensively, asking whether research and teaching could become removed from practice: "The problem is that business schools have embraced scientific rigor but … they have forsaken other forms of knowledge". Similarly, Burke and Rau (2010) identified this gap, arguing it could be narrowed through teaching that is enlightened by research. "By strengthening the research–teaching nexus, we believe it is possible to subsequently narrow the research–practice divide" (Bourke and Rau, 2010, p. 141). However, reviewing the teaching-research nexus literature Tight (2016 p.1) suggests that:

> We might do well to limit the emotional commitment often embodied in thinking about the association between research and teaching, and do more to explore in detail what actually happens in practice.

Robertson (2007) argued that the term 'nexus' obscures a greater complexity and variation in thought and practice indicating that the term is irrevocably plural. She suggested that "it is academics' conceptions of knowledge that shape the inter-relation of research, teaching and learning, and thereby contribute to variation in learning and practice" (p. 552). It can be argued that

entry into a profession such as accounting requires the acquisition of a codified body of knowledge – an external commodity in which the role of the teaching–research nexus is limited to curriculum design. However, this pedagogic approach is unsuitable when professional careers are so changeable and unknown (Barnett, 2012). Furthermore, graduates can only contribute to the wellbeing of society if they are capable of independent critical thought, calling for some to argue for a liberalising of the accounting curriculum (Sangster and Wilson, 2014). It is timely to consider whether research in accounting and finance should be more closely integrated into teaching in the hope of producing the critical thinking graduates the profession requires in the future.

The differing nature of academic experience across disciplines means that empirical work is frequently context-specific (Brew, 1999; Griffiths, 2004; Robertson and Bond, 2001; Shin 2011). This study is no different with its context-specific focus that of a professional discipline of accounting, a popular course of study in universities in many western countries. As described earlier the ANZ context is markedly different to the UK, especially in terms of class size, internationalisation, and accreditation[11]: consequently studying the teaching-research nexus in this new context is a significant contribution. It also complements recent investigations in this area, including that of Lubbe (2015), who interviewed eight accounting academics in two South African universities, finding that the influence of the accounting profession served to obstruct the perceived role and value of research and identifying a weak relationship between teaching and research within the accounting discipline. The South African accounting profession also influenced the curriculum through an accreditation process, further reducing the likelihood of any symbiosis between teaching and research.

[1] In ANZ accounting programs are accredited and graduates are admitted to CPAA or CA ANZ as associate members and can commence the professional program. In the UK individual accounting programmes are granted partial exemption from each professional body based on their syllabus coverage (Wilson 2014).

Australian government education department data shows that the number of teaching and research staff has barely changed in almost 20 years (Department of Education, 2016). In full-time equivalent terms it rose just eight per cent to about 27,000 in 2015, from 25,000 in 1996. Across the same period total staff numbers grew by 41 per cent, non-academic staff by 48 per cent, research-only staff by 99 per cent and teaching-only staff by 125 per cent. Student numbers have doubled from about 650,000 in 1997 to 1.3 million by 2013 (Ross, 2015, p. 32).

One of the recommendations in the 2008 review of Australian higher education known as the Bradley report was that the Australian Government, after consultation with the states and territories, develop more rigorous criteria for accrediting universities and other higher education providers based around strengthening the link between teaching and research as a defining characteristic of university accreditation and reaccreditation (Bradley *et.al*, 2008, p. 127). This is consistent with Hattie and Marsh (1996, p. 533) who suggested:

> Universities need to set as a mission goal the improvement of the nexus between research and teaching ... The aim is to increase the circumstances in which teaching and research have occasion to meet.

However, the Bradley report (Bradley *et al.*, 2008, p. 124) conceded there is no compelling evidence about the value of the teaching–research nexus and states:

> While it is difficult to find compelling research evidence which unequivocally supports the argument that graduates with degrees from such institutions are demonstrably better than those from teaching-only institutions, it would not be in Australia's best interests to ignore the weight of international opinion and practice on this issue.

In a 2015 report from the Grattan Institute, Norton (2015, p. 32) commented:

> Based on the median cost estimates, commerce contributed nearly $900 million to the total teaching surplus but only about $400 million was spent on commerce-related research, including government-funded projects.

There have been recent moves in Australian universities to appoint either teaching-only academics for whom there are no research expectations, or teaching-focused for whom the research

expectations are lower and mostly related to the scholarship of teaching. However, most accounting and finance academics in ANZ are expected to complete research and teaching on the basis that there is a symbiotic relationship between both activities. This study makes an important contribution by establishing the nature of the interaction between teaching and research in the disciplines of accounting and finance in ANZ.

**The relationship between teaching and research: a conceptual framework**

To empirically assess how the teaching–research nexus might be experienced by academic staff, a conceptual model was created by Duff and Marriott (2012) and is used in this research. Duff and Marriott (2012) identified four sets of factors that affect how the nexus is experienced. Factors one and two relate to the two primary stakeholders in the process: (1) staff; and (2) students. Factor three relates to the curriculum that faculty teach and students study while factor four relates to staff rewards, what motivates them to promote or exclude any relationship between teaching and staff and student research.

Within these four factors are a number of sub-factors, which for ease of understanding are framed as propositions. The literature underlying this conceptual framework is described in detail in Duff and Marriott (2012). Each proposition summarises what might be expected to be found based on prior work in other academic disciplines. These 19 propositions are operationalised by means of a number of statements (items) with which respondents are asked to agree or disagree on a five-point Likert scale. The administration of the questionnaire to samples of UK accounting academics found the 19 propositions were empirically composed of 11 factors; the development of the empirical model is reported in Duff and Marriott (2016a).

For the purposes of this research we utilise the 11-factor model to interpret our findings. The 11

factors represent matters that either positively influence teaching–research relations or act against them. Given the tendency of the education literature to use 'teaching–research nexus' as a normative term that views integrating teaching and research as a universal 'good', we employ the term 'teaching–research Gestalt'. We consider it a Gestalt in the sense that the constituent 11 factors that define the model create an entity that is neither wholly positive nor negative, but that collectively describe the character or spirit of attempting to integrate research within teaching and vice-versa.

Students tend to view staff research in a positive light in three ways: (1) students view research-active staff as expert in their area, adding significant credibility to the programme of study; (2) students see research as a viable career choice, in a similar vein to being exposed to practitioners during an industrial placement; (3) staff research can improve student learning as it gives students a sense of staff as learners themselves, rather than transmitters of knowledge or assessors.

However, staff research can also affect learning negatively. For example, the competing pressure of being research active means that staff may not be readily available to support students. Also, there is the risk that staff keen to communicate their work may pitch classes too high. In addition, the professional nature of accounting emphasises learning 'how to do a job' rather than the development of higher-level critical thinking skills and personal growth.

Considering the curriculum, research is said to enhance the value of knowledge by making learning cutting edge. Lee (2004) argues that "courses taught by those at the cutting edge of research will necessarily be of higher quality than those taught by those merely using the research results of others – whatever the apparent quality of their style of delivery" (Lee p.9). The inclusion of contemporary academic research promotes critical enquiry by students, forcing them to address contemporary issues in accounting, finance and the social and economic environment (Barnett,

2005). Researchers are sometimes also seen as the only credible supervisors of student projects and dissertations, as they too are actively engaged in the business of undertaking study and writing up findings in a competitive environment (Zamorski, 2002). In addition, pressures to include research can distort a curriculum, especially when competing pressures exist to include professional studies (Parker *et al*, 2011).

Teaching is also said to help researchers identify gaps in their own knowledge and stimulate their thinking. However, these benefits are achieved at a cost – performing one task must invariably limit productivity in another. This is perhaps especially so for academic workers, as teaching and research require different attributes: the gregarious actor versus the bookish librarian.

Finally, in a higher education sector driven increasingly by managerial rather than collegial mechanisms, it is necessary to consider the extrinsic rewards available. Unfortunately, evidence points to research and administration being more highly valued than teaching. While a teaching–research nexus may sound attractive to higher education leaders, at present few explicit rewards exist for creating such a connection.

**Method**

*Questionnaire design*

The questionnaire used in the study was identical to the survey of accounting academics in the UK (Duff and Marriott, 2012) and consisted of three sections. The 61 statements in section one were derived from the extant education literature considering the teaching–research nexus and related to an inductive model derived from the literature by two of the Duff and Marriott. They were aimed at eliciting perceptions of the teaching–research nexus, requiring respondents to indicate their acceptance using a five-point Likert scale from 'strongly agree' and 'strongly disagree'. Statements related to either normative statements made by other researchers about the nexus or were phrased

in such a way to relate to a respondent's own experiences. Exemplar items are shown in Table 1. Section two asked for demographic information including gender, age group, and seniority. Section three elicited respondents' views on eight statements made concerning the connection between research and teaching.

Table 1 here

*Data collection*

Questionnaires were distributed by email to 620 accounting and finance academics in ANZ listed as members of the Accounting and Finance Association of ANZ (AFAANZ). The aim of the study was identified within the email sent within the questionnaire. Respondents were assured that responses were confidential, that their anonymity would be observed, and that the results of the study would be used for research purposes only. There were two follow-up emails sent 14 and 28 days after the initial administration. Usable questionnaires were obtained from 97 participants, a response rate of 15.6%, similar to other surveys of accounting academics (Ballas and Theoharakis, 2002; Brinn *et al.*, 2001; Lowe and Locke, 2005).

*Instrument validation*

A comprehensive validation exercise of the measurement properties of the scores yielded by the inventory has been undertaken (Duff and Marriott, 2016a) to create a nested model consisting of two higher-order factors that are in turn described by 11 first-order factors. Internal consistency reliability analysis, followed by EFA was used to assess the measurement properties of the inventory when applied to our sample of accounting and finance academics in ANZ (Hinkin, 1995). When interpreting the internal consistency reliability analytic findings we consider a Cronbach's alpha coefficient in excess of .7 as indicative of homogeneity and suitable for work in an applied setting (Nunnally, 1978).

When undertaking EFA there are three methodological considerations: (1) the extraction method; (2) the rotation of the solution; and (3) the method used to select the number of factors that comprise the

final solution. Principal components was chosen as the extraction method because this method yields component scores that have the same correlation coefficients as the rotated factors and because component analysis does not unduly capitalise on sampling error as the price for estimating measuring error (Thompson and Daniel, 1996). Oblique rotation was used as theoretically we would expect significant inter-factor correlations to exist given the hypothesised two higher-order factor solution. When determining the number of factors to be extracted, Thompson and Daniel (1996) recommended employing a number of different methods to select factors. Accordingly, the present study used eigenvalues-greater-than-one (Kaiser, 1960), screen tests (Cattell, 1978), and the overall interpretability of the solution.

To explore distinct views of the relationship of research to teaching within the academics sampled, the nine scales were subjected to a *k*-means cluster analysis using the log-likelihood distance measure and Schwarz's Bayesian clustering criterion. As not all the 11 subscales are measured using the same scale, standardisation of the scores was undertaken. The number of clusters was determined by examining: (1) the within cluster variation plots, to determine the distance between the potential clusters across each measure case; (2) a Bonferroni-adjusted comparison of means between cluster scores on each measure. Statistical significance testing is undertaken ($\alpha = .05$). Effect sizes ($\eta^2$) are also reported for interpretative and replication purposes, although the relatively small sample sizes mean that statistically significant findings are practically significant[2].

**Results**

*Characteristics of the survey sample*

To evaluate response rate bias on the sample, a comparison was applied to early (first 33 percent) and late (last 33 percent) of respondents sampled using the Wilcoxon-Mann-Whitney non-

[2] Simultaneously testing multiple hypotheses, as here, creates an issue of false discovery rates (or family-wise error), whereby a Type 1 error is more likely to occur. To control for false discovery rates when $\alpha$ is reduced to .01, the one item (p=.04) is no longer statistically significant.

parametric test. This assumes late respondents are similar to non-respondents (Dillman, 1978). Only one statistically significant difference (α=.05) was found across the 61 survey items to which this test was applied[3]. Although the limitations of such tests are well-known (Wallace and Mellor, 1988), it is unlikely that response bias will challenge the validity of the results of the present investigation. It is unlikely that response bias will challenge the validity of the results of the present investigation.

In examining the structure of the sample population to indicate its robustness, the distribution across designations appears to be representative of the seniority structure over the universities sampled (see Table 2). Senior staff (i.e. professors and associate professors) represent 33 per cent of the sample.

Of the 87 per cent of respondents from Australia, these were spread across the six states, while 13 per cent of respondents were from New Zealand; 53 per cent of the sample population were men and 47 per cent women, with 72 per cent of the total respondents aged 46 years or older. The vast majority of the sample (89 per cent) had more than ten years' experience as an accounting academic.

Table 2 here

Table 3 provides some details of how the survey population spends its time at work. Teaching represents the largest proportion at 41.2%. Own research is the second most significant activity, in terms of time, at 24.8%. Administration (e.g., participation in committees and admissions) consumed 21.8% of the sample population's time, with research-related administration (e.g., doctoral student supervision, editorial and reviewing activities) accounting for 9.7% of the sample's workload. However, the standard deviations reported for each of these activities were relatively large, suggesting that how the sample population spends its time is not evenly distributed. An analysis of

[3] Eta-squared (η2) is a measure of effect size, analogous to R2 in multiple regression, is interpreted as .02 = small; .13 = medium; and .26 = large (Cohen, 1977).

individual responses identifies some academics may undertake no teaching, while others will undertake little research-related activity. However, the nature of the Gestalt is that it is dynamic and contextual. It is dynamic in the sense that people will encounter differential teaching workloads depending on the academic role they find themselves in. For example, a departmental head or Dean will undertake perhaps little teaching but will probably have significant prior teaching experience. Teaching workloads vary from institution to institution, as do research expectations and institutional philosophies and missions, and faculty frequently move from post to post. Nonetheless the respondents are representative of the corpus of accounting and finance faculty in ANZ.

Table 3 here

Finally, Table 4 provides details of our respondents research interests. Education (*N*=25), financial accounting and reporting (*N*=18), and management accounting (*N*=15) were the most popular categories, although responses suggest significant plurality in accounting and finance research in ANZ.

Table 4 here

*The teaching–research Gestalt in ANZ*

The statistical analysis of the data proceeds as follows. An exploratory factor analysis is undertaken to establish the ability of the model to measure what it is intending to measure, namely the teaching-research Gestalt. Variation within responses are examined using a cluster analysis to identify groups (clusters) of respondents that are more similar (in their responses to the inventory) to each other than to those in other clusters. Differences between the clusters are examined by means of a multivariate analysis of variance (MANOVA).

The final model consists of nine first-order factors that are in turn measured by two higher-order factors. The first higher-order factor, Positive aspects of the Gestalt, consists of four factors labelled: research promoting critical analysis; research-led teaching; researcher stimulation of ideas; students' value contact with researchers. The second higher-order factor, Negative aspects of the Gestalt, consists of five factors: extrinsic rewards of research; research dissonance from the curriculum; tension between research and professional; teaching and research different attributes; and development of professional skills. Table 5 reports the factor pattern matrix, that is, the rotated solution of the factor analysis. Each of the eigenvalues-greater-than-one, the screen plot, and interpretability of the solution decision rules suggests a two-factor solution. Thus, the nine scales are reduced to two factors as predicted, replicating the hypothesised positive and negative Gestalt factors. The findings largely support the hypothesised 11-factor model, derived from Duff and Marriott (2016a) with the exception that the empirically weakest positive Gestalt factors of Duff and Marriott (2016a) labelled 'Currency of research to the curriculum'and 'Student learning' are removed. The removal of these two factors reflects the smaller sample size in the Australian sample (*N*=75) relative to the UK study (*N*=247).

Table 5 here

Table 6 reports the means and standard deviations for the main variables used in the study, along with the scale inter-correlations and coefficient alpha. In general, on a scale of 1 to 5, respondents rated extrinsic rewards of research as the most important factor ($\mu$=3.98); along with research promotes critical analysis ($\mu$=3.59). Respondents ascribed the lowest value to research-led teaching ($\mu$=2.59).

Table 6 here

The nine-factor solution was subjected to a *k*-means cluster analysis. Using the decision-rules described within the methods section, it was decided that a three-cluster solution was most appropriate for the data. A MANOVA was conducted using the nine subscales as dependent

variables and the clusters as the fixed factor. The results show significant differences between the three clusters on the dependent measures [Wilks' $\lambda$ = .120, $F$ (18, 136) = 14.30, p < .001, $\eta^2$ = .65]. Table 7 contains the standardised means and standard deviations on the 11 subscales for the three clusters, in addition to the $F$ tests and partial effect sizes. The large $F$ ratio, small observed statistical significance level, and large effect sizes associated with each of the 11 subscales suggest high variability between the three clusters for each of these variables, so that we conclude the clusters are satisfactory descriptors of different types of academics.

Table 7 here

Pairwise comparisons of the three clusters were undertaken applying post-hoc tests, Tukey's HSD. To control for type 1 error, the alpha level was reduced to .0167 (i.e., .05/3). The between subjects effects revealed statistically significant differences between the three clusters on all eight dependent variables. Considering the positive side of the Gestalt dichotomy, cluster 3 produces statistically significantly higher scores ($p$<=.001) than cluster 1 and 2 for each of its four constituent scales. However, there were no statistically significance differences between clusters 1 and 2 considering the Positive effect of the Gestalt scales. When the Negative effect of the Gestalt is considered, on all five constituent scales, clusters 1 and 2 yield scores that are statistically significantly higher than cluster 3 ($p$<=.001). Cluster 1 also has a statistically significantly higher score than cluster 2 on extrinsic rewards of research ($p$<.001).

Clusters 1 ($N$=16) and 2 ($N$=30) are low on positive Gestalt factors and moderate to high on negative Gestalt factors. These clusters are accordingly labelled 'a world of research–teaching incongruity' implying a lack of fit between an academic's research activity and their teaching. Figure 1 displays the three distinct profiles for the positive teaching–research Gestalt identified using the cluster analysis. The negative teaching–research Gestalt profiles are shown in Figure 2.

Figure 1 here

Figure 2 here

Cluster 3 (*N*=29) is characterised with positive education–research Gestalt factor scores and correspondingly the lowest scores on the negative teaching–research Gestalt factors. It consistently has the highest scores on the positive factors and lowest on the negative factors. This cluster then could be described as populating a 'world of research–teaching connexion'. Cluster 3 has the highest proportion of respondents at the lecturer and senior lecturer levels and the lowest proportion of research active staff.

Various demographics such as gender, experience as an academic, percentage entered in ERA/PBF, percentage working at a Group of 8 university in Australia, and where academics resided are reported by cluster in Table 8.

Table 8 here

The work activities of the three clusters are reported in Table 9. Each cluster undertakes similar amounts of teaching, administration, consultancy, and research-related administration. In terms of time spent on own research, cluster 1 (32.6%) spends significantly more time doing research than cluster 3 (18.1%).

Table 9 here

Seniority and job role is described in Table 10. Professors and associate professors are largely grouped into clusters 1 and 2. By contrast a significantly larger proportion of lecturers and senior lecturers are found in cluster 3.

Table 10 here

To summarise, we are presented with a picture whereby, clusters 1 and 2 inhabit a 'world of research–teaching incongruity'; the differentiating factor between the two clusters being the extrinsic rewards of research factor. Clusters 1 and 2 are made up of senior staff, who spend

significant time on their own research. Cluster 3 inhabits a 'world of research–teaching connexion', where research and teaching are seen, at least potentially, as being related and mutually supportive. Overall, three-quarters of our sample of accounting and finance academics in ANZ, largely see research and teaching as relatively unconnected and dissimilar.

*Qualitative results*

The survey also included eight quotes or statements made by academics or students found within the research–teaching relations literature. Respondents were asked to what extent they agreed with each quote or comment. The comments were examined to see if they were consistent with the cluster groupings. We believe this is important for the study as while is not possible to test statistically any association, we can report that many comments were consistent with the cluster of the respondent. Hence, the comments do provide some validation of the clustering reported in the previous section. Furthermore, the qualitative comments add richness to the quantitative findings. Each of the quotes examines elements of the relationship between education and research and provides additional insights to those gained from a Likert-survey alone.

The first quote was taken from a white paper published by the UK Government but similar comments are found in the Bradley (2008) report (the quote as used in the UK study was retained so comparison of results could be made in another paper). Specifically, respondents were asked to what extent they agreed with the following quote:

> It is clear good scholarship, in the sense of remaining aware of the latest research and thinking within a subject, is essential for good teaching, but not that it is necessary to be active in cutting-edge research to be an excellent teacher. (UK Government White Paper 2003, *The Future of Higher Education*)

Members of cluster 3 generally agreed with the comment and the general view was that while it is important to be aware of the research it was not necessary to do the research except, according to one person, where the research was looking at pedagogy.

*Being aware, as opposed to being cutting-edge active, leaves space to change teaching methods and content to incorporate what is new. (Cluster 3, Other, Lecturer B, Male)*

*Scholarship does not need to imply production of research outputs. (Cluster 3, Australian Technology Network* (*ATN), Lecturer B, Male)*

*Reading and understanding the research is important, doing the research less important as you cannot only research in areas relevant to what you teach. The more you specialise the less broadly you read. (Cluster 3, Group of eight* (*Go8), Lecturer B, Female)*

*A lot depends on the focus of the research. If it is research into pedagogy then it is important but research into a niche area is not critical to good teaching. (Cluster 3, ATN, Lecturer B, Male)*

As expected many members of clusters 1 and 2 did not agree with the comment:

*It is difficult to be aware of the 'latest research and thinking' including the impact that research would have on teaching and learning from an intellectual stance alone. (Cluster 1, Other, Lecturer B, Female)*

*I feel research and teaching are 'two sides of the same coin' ... research involves the academic experiencing for themselves actively learning and constructing new knowledge ... teaching involves students being supported to actively learn and construct their own knowledge ... and a key to good teaching is the teacher being empathetic with students' experience of learning ... when teaching, we can as academics learn alongside our students, but it is the students who are doing most of the learning ... research is academics experiencing learning, which can help us keep closer to the experience of learning of our students ... in this view, teaching and research are both 'learning activities' which can mutually strengthen and support the other ... and keep us 'balanced' … to me it seems difficult to conceive doing one without the other. Simply reading research does involve learning for the academic ... but it is more 'passive' … than actively doing our own research, with all the struggles and intellectual challenges involved with that ... (Cluster 2, Other, Senior Lecturer C, Male)*

The second quote was attributed to von Humboldt:

> Research is rightly the first of all academic qualities because it is the academic quality that generates all other academic qualities.

As expected respondents in cluster 3 disagreed with this comment; some typical responses included:

*No teaching and research are equally important though non-complementary activities. (Cluster 3, Go8, Professor E, Male)*

*That is dogmatic and absurd without considerable elaboration of the mind-set which the research is conducted. Some gurus, e.g. of stakeholder theory, have all the academic qualities of an ayatollah. (Cluster 3, Other, Professor E, Male)*

*That is a very conceited sounding comment. A range of academic skills are important. (Cluster 3, Go8, Lecturer B, Female)*

*You can be a great teacher without being a great researcher. (Cluster 3, Other, Lecturer B, Female)*

Consistent with the classification into clusters 1 and 2 the following comments found strong support for the statement:

*I agree because of the Academic Qualities. And knowledge generation is the first step in communicating it to someone else. (Cluster 1, Go8, Lecturer B, Male)*

*Research is what differentiates Universities from TAFE, training, etc. (Cluster 1, ATN, Professor E, Female)*

*Research produces critical thinking skills and the ability to understand the impact of that research on today as we move towards tomorrow. (Cluster 1, Other, Lecturer B, Female*

However, not all members of clusters 1 and 2 agreed with the comment as one respondent in cluster 2 commented.

*I think research and teaching are 'equal' ... two sides of the one coin ... each with their part to play. (Cluster 2, Other, Senior Lecturer C, Male)*

*I think often research and education go hand in hand - those academics with what I would consider the highest level of academic qualities are strong in both research and teaching. (Cluster 2, Go8, Associate Professor D, Female)*

The third quote was made by a student (Lindsay *et al.*, 2002 p. 309):

> If you are setting people on the road to research then it's ... quite obvious, that if the lecturer isn't involved research themselves, how can they do this?

Respondents in cluster 3 made comments reflecting similar views to the first quote in that it is not essential to do research to be able to teach about research.

*One can still inspire others to reach goals or achieve in areas where one is not active. (Cluster 3, Other, Lecturer B, Male)*

*Not researching does not preclude a lecturer from understanding the "road to research". (Cluster 3, Go8, Lecturer B, Male)*

To further support their position some members of cluster 3 expressed the view that many accounting and finance students are not interested in a research career:

*This is more difficult if the lecturer is not a researcher, but most of our students do not want to research. (Cluster 3, Other, Lecturer B, Female)*

*We're not setting students on the road to research. 99% of our students do not want to move into a research career. Given pay relativities, it would be detrimental to encourage them to consider a career in research. (Cluster 3, Other, Senior Lecturer C, Male)*

As expected the comments from those classified into clusters 1 and 2 generally supported the statement:

*You need to practice what you preach. (Cluster 2, ATN, Senior Lecturer C, Female)*

*This is the case of leading by example. (Cluster 2, Other, Professor E, Male)*

*There needs to be an understanding of the research method and process if you are to impart this to students. (Cluster 2, Go8, Associate Professor D, Female)*

However, not all the comments were consistent with the clustering as one respondent in cluster 2 commented:

*Having some experience in conducting research is helpful in communicating to students what research involves. However, a teacher can still communicate enthusiasm for the benefits of research by being excited about the findings of research". (Cluster 2, Go8, Associate Professor D, Male)*

The fourth quote had also been made by a student:

> You've got this, in the back of your mind, if you go and see somebody, you know that you can't go and talk to them for too long, because they're always really busy, you know. (Lindsay *et al.,* 2002, p. 309)

Members of cluster 3 generally supported the statement with comments like "this seems plausible" or

*This suggests that the person is rude. But many academics give students this feeling. What they are doing is not as important as they think. (Cluster 3, Go8, Lecturer B, Female)*

Those academics in clusters 1 and 2 were also generally in agreement although for different reasons. For example:

*Not necessarily a bad thing. We need to foster independence in our students, not spoon feed them. (Cluster 1, ATN, Professor E, Female)*

*Students have very little overall awareness of what is truly involved in an academic life (Cluster 1, Other, Senior Lecturer C, Female)*

*This is a case of respecting other people's time and acknowledging their varying responsibilities. (Cluster 2, Other, Professor E, Male)*

The fifth quote owes its provenance to another student:

> You also need the research to be at the cutting edge, because there's no point in doing a course to find it's outdated when you go out into the real world. (Master's student, Hospitality and Tourism reported in Lindsay *et al.*, 2002, p. 320)

Once again the respondents in cluster 3 expressed a similar theme in that it is not necessary to be involved in cutting edge research to be able to teach about the research.

*You can read about the research. You don't have to do it yourself to inform the students. (Cluster 3, Go8, Professor E, Male)*

*The cutting edge is not the same thing as up to date – indeed if it is cutting edge, it could be well ahead of its time e.g., Ijiri's 1980s work. (Cluster 3, Other, Professor E, Male)*

One respondent in cluster 3 was of the view that research is, in fact, not relevant for many undergraduate units, a comment made by others in cluster 3

*Research is not that relevant to many accounting units in undergrad. (Cluster 3, Go8, Professor E, Female)*

One respondent in cluster 1 commented:

*Too much research doesn't relate to the 'real world'. Our discipline is technical and it is a great injustice if lecturers do not stay up-to-date with accounting standards (in financial accounting at least). This in-itself is task enough! (Cluster 1, Other, Senior Lecturer C, Female)*

Another respondent in cluster 2 commented:

*I think it is more important to teach students how to research, and to synthesise the results of research than to merely focus on the findings of research. (Cluster 2, Go8, Associate Professor D)*

The sixth quote is from an academic identifying how some of the best research ideas actually come from teaching:

> Some of my best research ideas have come out in the course of teaching in an area that is not necessarily something I do a lot in but I'm reading it up for my teaching and think 'Oh that would be really interesting, why don't we do that? (Kane *et al.,* 2004, p. 297)

The responses across all clusters were equivocal. For example, a respondent in cluster 3 commented that:

> *Yes but this happens rarely. Some of my best research ideas come when I am doing things other than teaching. (Cluster 3, Go8, Professor E, Male)*

A cluster 2 respondent stated that:

> *I have not experienced this, but can see that it could easily be true for many. (Cluster 1, ATN, Professor E, Female)*

Another cluster 2 respondent commented:

> *NO, but teaching helps me to understand some of other peoples' research. (Cluster 2, Go8, Senior Lecturer C, Female)*

One comment from a cluster 3 respondent was representative of an issue that pervades many institutions in Australia given the impact of research assessment exercises and the low ranking assigned to many of the specialist pedagogic journals like *Journal of Accounting Education* and *Accounting Education: An International Journal:*

> *Teaching research is not classified as research but is called scholarship in our institution. So researching in teaching doesn't help other than your own PD [personal development]. (Cluster 3, Other, Lecturer B, Female)*

> *While I have encountered this feeling, it has only ever resulted in publication in journals which concentrate on practical issues, which tend to be the lowest ranking journals. (Cluster 3, Other, Senior Lecturer C, Male)*

Quote number seven owes its provenance to Elton (2001, p. 52) describing problems encountered by a distinguished academic's teaching and relates to how academics perceive their students.

> Academic teachers think of students in terms of their own student experience and rarely if ever verify how typical it is from the viewpoint of their own students. Since only a few students become academics the very opposite is typical.

Opinion on this quote was more evenly split for example:

> *True. Students are a lot less motivated than the average academic was as a student. (Cluster 2, Go8, Senior Lecturer C, Female)*

*That is what everyone does, think that there experience is the only one. Students think of academics as high school teachers, and do not know the difference. (Cluster 1, Other, Lecturer B, Female)*

But there were many who did not agree – mostly from cluster 3 – and argued that good teachers are able to understand and relate to the many differences in students.

*Most academics have more imagination than that. Most students don't become academics because the conditions are not attractive for early career people (Cluster 3, Go8, Professor E, Male)*

*I think good teachers are learning from their students. (Cluster 3, Other, Lecturer B, Male)*

*Good teachers use their own experience but blend it with other insights to inform students. (Cluster 3, ATN, Lecturer B, Male)*

The final quote was from an academic and relates to teaching, research and job security.

> No wonder research and teaching are seen to be strongly linked - to have a job at all, the academic needs students to teach, and to have a job with prospects of promotion, the academic needs to research. These facts, however, are separate from the notion that your own research and teaching are strongly linked. (Brown, 2005 p. 396)

One respondent from cluster 3 commented that:

*…the perception is they are linked but the reality is that keeping your job and moving up is based on research while for the University to survive they need students numbers to teach. (Cluster 3, ATN, Lecturer B, Male)*

Another cluster 3 member stated:

*…research has often little to do with teaching. (Cluster 3, Other, Lecturer B, Female)*

Some respondents commented that it is not always possible to link teaching and research due to the needs of the educational programme. For example, one respondent from cluster 1 commented:

*I research in financial accounting and I teach in financial accounting – however, sometimes academics cannot control where they teach irrespective of their research interests. Decisions are often FIRST made on TEACHING requirements. Someone has to 'fill a spot' rather than considering a better synergy between their research and teaching. This would make more sense in the first instances. (Cluster 1, Other, Senior Lecturer C, Female)*

Another in cluster 2 made a similar observation:

> *I prefer to teach in subject areas where I have published research in some aspect of that subject – I get excited and the students enjoy the experience more. However, sometimes there are subjects that 'someone has to take' and we all get landed with these from time to time. (Cluster 2, Other, Senior Lecturer C, Female)*

**Discussion and conclusions**

This study provides a contribution to the accounting and finance literature by investigating empirically the views of accounting and finance academics of the connections between teaching and research in ANZ. We employ the same instrument as used by Duff and Marriott (2012, 2016a, b) and deploy a rich set of both quantitative and qualitative data, which are analysed in the paper.

The aims of this study were to assess the appropriateness of an empirical model developed using a sample of UK accounting academics to examine the relationship of teaching to research and vice versa. Also, in the national contexts of ANZ, to establish accounting and finance academics' views of how teaching and research interact. This was achieved using a cluster analysis of scores on 11 measures of what we term the teaching–research Gestalt. The survey results reveal that the highest-rated factor was extrinsic rewards of research; a finding that could be expected given the importance of the research ranking exercises in ANZ and the focus on research outputs. Research institutions offer a variety of incentives to faculty to undertake research from monetary rewards to a faster promotion track.

An important finding is that the empirical model developed for the UK population of accounting academics operates almost equivalently for the population of accounting and finance academics in ANZ. Notably, nine (of 11) hypothesised factors were replicated in the ANZ sample; each factor identified in ANZ data had a similar item composition to the UK model. This is perhaps surprising as empirically the study used EFA which seeks the best mathematical solution, rather than trying to fit the data to a model as in confirmatory factor analysis. The nature of university accounting education

in ANZ is significantly different to that of the UK as reported earlier in the paper in at least three respects. First, the numbers enrolled in an accounting programme at an ANZ university usually far exceed those in a UK accounting programme. Second, ANZ accounting programmes include large numbers of international students. Third, accounting degrees provide the majority of trainees joining the accounting industry, whilst in the UK accounting employers seek diversity in their intake, hiring non-accounting graduates and increasing numbers of school-leavers (see Duff, in press). This implies that it is the teaching and researching of accounting as an academic discipline that is important in understanding these relationships rather than the geographic and economic environment in which it is located. The two factors in the UK model with the smallest proportion of variance; that is, those least able to describe teaching–research relations, are removed from the ANZ model, which probably reflects the smaller sample size of the ANZ survey. Overall, we conclude that views of the relationship between research and teaching in ANZ are broadly similar to those of the UK, despite the considerable differences in accounting tuition, especially student: staff ratios, the differential numbers of international students and differing recruitment profiles and accreditation demands across the two nations The high replicability of the model reported in Duff and Marriott (2016a) then suggests that perceptions on teaching: research relations may be applicable in other geographical locations and conceivably other disciplinary domains.

Clusters 1 and 2 describe the 'world of teaching–research incongruity' (Duff and Marriott, 2016b). The defining difference between the two clusters is extrinsic rewards of research scores. For cluster 2, the rewards are relatively insignificant, whilst cluster 1 reports this measure as significant. Cluster 3 reflects the 'world of teaching–research connexion' (Duff and Marriott, 2016b), where generally high scores are found on the positive aspects of the Gestalt and low scores on the negative.

What are surprising are the demographics of these two worlds. The 'world of teaching–research connexion' as exhibited by Cluster 3 is more likely to be inhabited by less senior academics at the

lecturer and senior lecturer levels. They are also likely to be less research active and carry a higher teaching load. Perhaps this is not surprising and reflects the strong interest in teaching by members of this cluster. The comments from members of this cluster about the importance of pedagogic research support this view.

Although clusters 1 and 2 inhabit a largely similar world, in that they do not subscribe to the view that research and teaching are closely linked, their demographics differ significantly. Cluster 1, which is heavily focused on the extrinsic rewards of research, consists of a higher proportion of professors and associate professors whereas Cluster 2 has a larger representation of senior lecturers and lecturers. Also members of Cluster 1 devote about 10 per cent more time to research than those in Cluster 2 who spend more time on administration. The higher proportion of Cluster 1 members who are research active (93.8%) compared to Cluster 2 (81.8%) probably explains why the extrinsic rewards of research factor has such explanatory power. They may well be working at research intensive universities where research output is rewarded, and conversely, a paucity of research production is punished.

We acknowledge the research has some limitations. Although the Gestalt model is based on the extant education literature, the highly technical focus of accounting may hinder the close relationship of teaching and research as alluded to by some of the respondents. The research considers the views of accounting and finance academics, but excludes those of other important stakeholder groups, such as students, professional bodies, and accounting employers. Future research could be conducted with employers and professional accounting bodies to consider how research may contribute to the provision of accounting education. It would be worthwhile replicating this study in other contexts, especially in the USA where junior faculty frequently have a stronger research focus and senior faculty teach to a greater extent to determine whether the findings in this paper hold in different environments.

In conclusion, we identify significant variation in academics' responses to the idea that accounting and finance teaching and research are related. Critically, the majority of respondents do not see accounting and finance teaching and research as being linked and the strongest opposition comes from senior staff. The views of the most experienced and senior individuals carry significant weight within the academy and at departmental and university level within their own institutions. Therefore, there is a paucity of leadership for research–teaching relations and, consequently, it is unsurprising that the relationship finds little traction within departments.

It is likely that linking teaching and research is impractical in a climate that sees departments of accounting and finance delivering education to mass classes of international students, where accounting and finance are seen as a means to an end, as just a component of some other university subject (Duff and Mladenovic, 2015) or as the gateway to a lucrative career rather than as subjects that are intrinsically interesting and rewarding. Similarly, senior staff with comprehensive individual research agendas may be wary of the idea of connecting teaching and research as representing a potential restriction of academic freedom. That is, research can only be valued if it has some form of utility in the classroom when what is taught in the classroom is largely determined by accounting professional bodies (Duff and Marriott, 2012).

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